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WHAT IS CLAIMED IS:

1. A static pressure sensing probe for use with an aircraft, the probe having an aerodynamically shaped cross section and a length protruding from a base portion, the base portion being mounted on an aircraft surface, the probe length being sufficient to extend beyond a boundary layer of air on the aircraft surface, at least one surface corrugation on the probe extending laterally out from the base portion along the probe length to cause a pressure change in air flowing over the corrugation, and a first pressure sensing port on the probe in a selected position adjacent to the surface corrugation.

2. The probe of claim 1 wherein the surface corrugation is an upstream corrugation relative to air flowing over the probe, a second downstream surface corrugation on the probe formed substantially parallel to the upstream surface corrugation, a second pressure sensing port on the probe adjacent to the downstream surface corrugation, the first and second pressure sensing ports being positioned at locations to provide a selected static pressure function.

3. The probe of claim 1, wherein said corrugation comprises a ridge raised upwardly from a generally aerodynamically shaped upper surface of the probe.

4. The probe of claim 3 further comprising a bottom corrugation on a bottom surface of the probe, extending laterally out from the base portion along the probe length to cause a pressure change in air flowing over the bottom corrugation, and a second static pressure sensing port in the probe adjacent the bottom corrugation.

5. The probe of claim 4 further comprising the second pressure sensing port positioned at a location wherein the sensed static pressure is at a desired relationship to static pressure sensed at the first pressure sensing port.

6. The probe of claim 5, wherein the second port is positioned at a location wherein the static pressures sensed at the first and second ports are substantially equal at a known orientation of the probe relative to the airflow.

7. The probe of claim 5, wherein the probe comprises top and bottoms spaced walls having the top and bottom surfaces, the spaced walls forming a pressure chamber, and the first and second ports both opening to the pressure chamber.

8. The probe of claim 2, wherein the corrugations cause a normalized pressure function $(P_m - P)/ q_c$ to change at different locations in a direction on the probe substantially parallel to the direction of air flow over the probe, and wherein P_m is measured pressure, P is local static pressure, and q_c is total pitot pressure minus true static pressure.

9. A static pressure sensing probe having a base, an outer end, a leading edge facing in the direction of an air flow, and a trailing edge, the probe cross section perpendicular to a length of the probe between the base and the outer defining upper and lower surfaces that have convex aerodynamically contoured, surface portions adjacent the respective leading and trailing edges, at least a first ridge on at least one surface of the probe extending along the length of the probe, said ridge having sufficient height from the adjacent portions of the upper surface to cause a static pressure disturbance of air flowing across the one surface, wherein the local static pressure rises and falls as it flows over the first ridge, a pressure sensing port on the probe positioned adjacent to the first ridge and at a position that is selected to have a different static pressure from the pressures at the convex surface portions.

10. The probe of claim 9, and wherein there is a second ridge on the one surface spaced toward the trailing edge of the probe from the first ridge, and causing a second static pressure disturbance, and a second pressure sensing port on the probe positioned adjacent to the second ridge at a selected position to sense pressure in a region of the second static pressure disturbance.

11. The probe of claim 10, wherein the first ridge and the second ridge are both on the upper surface of the probe.

12. The probe of claim 9, wherein the first ridge is spaced from the leading edge of the probe, and one convex surface portion extending between the first ridge and the leading edge.

13. The probe of claim 10, wherein said aerodynamically shaped cross section has vertically spaced top and bottom surfaces, and the top and bottom surfaces having the convex surface portion tapering toward each other in a downstream direction from the first and second ridges, each of the top and bottom surfaces having first and second ridges and first and second pressure sensing ports.

14. The probe of claim 13 wherein the probe has at least two chambers therein, the first pressure sensing ports in both the top and bottom surfaces opening to the first chamber, and the second pressure sensing ports in both the top and bottom surfaces opening to the second chamber.

15. The probe of claim 9, wherein the length of the probe positions the outer end outside of and adjacent to the boundary layer of an aircraft on which the probe is mounted.

16. The probe of claim 9, wherein the length of the probe is maintained to be not substantially greater than 10cm.

17. A method of forming a family of static pressure sensing probes, with each probe having a base, an outer end, and a length extending between the base and the outer end, and having a generally aerodynamically shaped cross section, at least one corrugation extending along the length of the probe at a location to cause a pressure disturbance comprising rising and falling static pressures as air flows over the corrugation, the method comprising determining a selected air speed of an aircraft on which the probe is to be mounted, and determining the outward extent of a boundary layer of air on a surface of an aircraft at the location where the base

of the probe is to be mounted, providing a probe length that positions the outer end a outside of but adjacent to the outward extent of the boundary layer, determining the pressure pattern of air flow across the corrugation at the selected air speed, positioning at least one pressure sensing port at a desired location relative to the corrugation where a sensed pressure function is at a desired level, and with the desired location outwardly from the base sufficient to be to the exterior of the outward extent of boundary layer on the surface of the aircraft on which a probe is to be mounted.

18. The method of claim 17, including providing the family of probes as a separate probe for each of a selected number of different aircraft.

19. The method of claim 17, including providing at least two corrugations on the probe, one being downstream of the other sufficiently far so that a pressure disturbance caused by the upstream corrugation does not substantially affect a pressure disturbance at the downstream corrugation, determining the pressure pattern across both of the corrugations, and selecting a pressure level for positioning at least two ports in the probe, one adjacent each of the at least two corrugations.